

Notice of Allowability

Application No.

10/777,561

Examiner

James D. Stein

Applicant(s)

KLINGSPORN, PAUL EDWARD

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed on 8/24/05.
2. ☒ The allowed claim(s) is/are 1-3, 5-11, 13-19 and 21-24.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

John D. Lee
John D. Lee
Primary Examiner

James D. Stein
Patent Examiner, AU 2874

DETAILED ACTION

This Office Action is responsive to the amendment filed on 8/24/05, which has been fully considered and entered into the prosecution record. Claims 1, 5, 9, 13, 17 and 21 have been amended and claims 4, 12 and 20 have been cancelled. Therefore, claims 1-3, 5-11, 13-19 and 21-24 are pending in the application.

Allowable Subject Matter

Claims 1-3, 5-11, 13-19 and 21-24 allowed.

The following is an examiner's statement of reasons for allowance: As was stated in the previous Office Action mailed on 6/8/05, none of the prior art of record discloses or suggests An apparatus for combining multiple light signals, the apparatus comprising: a receiving optical fiber; an input optical fiber adapted to carry a light signal, wherein the input optical fiber is oriented along an optic axis having an inclination angle relative to the receiving optical fiber; a collimating lens interposed along the optic axis between the input optical fiber and the receiving fiber and adapted to collimate the light signal, wherein the collimating lens has a first diameter and a first focal length and the input optical fiber has a numerical aperture, and wherein $\arctan(\text{the first diameter} / (2 + \text{the first focal length})) \geq \arcsin(\text{the numerical aperture})$; and a focusing lens interposed along the optic axis between the collimating lens and the receiving fiber and adapted to focus the collimated light signal onto the receiving fiber. Applicant has amended independent claims 1, 9 and 17, from which all other claims depend either directly or indirectly, to incorporate this subject matter. Therefore, the claimed subject matter is patentably distinct from the prior art.

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As was stated in the previous Office Action, the most relevant prior art, the Gardner reference, discloses the optical components and general structure of the device as limited by the claims. However, it fails to disclose the specific mathematical relationship between the numerical aperture of the optical fiber, the diameter of the collimating lens, and the focal length of the collimating lens as limited by the claims. Applicant has discovered that this relationship provides for combining multiple light signals onto the single receiving fiber with a higher degree of efficiency using fibers of the same diameter and numerical aperture and using less space than is possible than in the prior art. Therefore, it would not have been obvious to arrive at this relationship by means of routine experimentation.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

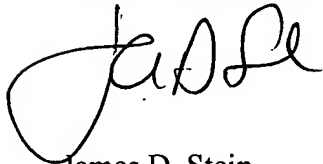
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

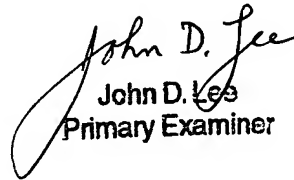
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



James D. Stein
Patent Examiner, AU 2874



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